

Seth Busche

B.S. Aerospace Engineering (Astronautics) – Expected May 2026 | Florida Institute of Technology
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Education

- Florida Institute of Technology — Melbourne, FL
B.S. Aerospace Engineering (Astronautics) | **GPA: 4.0** | Expected May 2026
- University of Colorado — Colorado Springs
B.S. Mechanical Engineering (Transferred) | GPA: 3.8 | 70 Credit Hours

Technical Skills

- **Structures & Mechanical Engineering:**
Requirements derivation, structural layout and load path definition, free-body diagrams, hand calculations, critical load case development, static structural analysis, deformation and stiffness assessment, factor of safety verification, actuator sizing and trade studies, design for manufacturability, basic fatigue awareness
- **CAD/FEA Tools:**
Creo Parametric, ANSYS Workbench (Static Structural, Deformation), SOLIDWORKS, Fusion 360
- **Programming & Analysis:**
MATLAB (analytical modeling, dynamic simulation), C++

Project Experience

Lead Structures Engineer – Modular Satellite & 3-DOF Test Stand

Capstone Design Project | CDR Complete

- Participated in the entire mechanical design lifecycle, including requirements derivation, conceptual and detailed design, and development of system-level critical load cases
- Executed static structural and deformation FEA in ANSYS to verify structural strength, stiffness, and a minimum factor of safety ≥ 2
- Developed free-body diagrams and hand calculations to validate FEA assumptions and actuator load paths
- Executed linear actuator trade studies, validating load capacity, stroke, and performance against derived system requirements
- Achieved required motion envelopes of $\pm 35^\circ$ roll and pitch with continuous 360° yaw rotation
- Designed modular mechanical interfaces supporting assembly, integration, manufacturing, and development testing
- Developed a MATLAB-based analytical and dynamic motion simulation to validate system behavior before hardware implementation

Attitude Determination & Control Systems Project – TESS Spacecraft Evaluation

- Calculated spacecraft center of gravity, mass properties, and moments of inertia to support attitude dynamics and control analysis
- Applied fundamental mechanics and mass property analysis to support spacecraft dynamics, stability, and control modeling

Professional Experience

Associate Aeronautical Engineer (Structural Team) – Contingent Offer | Northrop Grumman

- Selected for a structural engineering role pending government program funding
- Interim security clearance granted; full clearance in progress